CLAIMS

[1] A granular polysaccharide polymer comprising a phthalocyanine skeleton bonded to a granular porous polysaccharide polymer.

[2] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 1 wherein the particle diameter of the granular polysaccharide polymer is 1 μm to 2 mm.

[3] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 1 or 2 wherein the granular polysaccharide polymer is crosslinked.

[4] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 3 wherein said granular polysaccharide polymer is a granular porous chitosan or granular porous chitin.

[5] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 4 wherein the granular polysaccharide polymer has a BET surface area of not less than 10 m^2/g.

[6] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 5 wherein the amount of the bound phthalocyanine skeleton is 5 μmol to 1 mmol per g of the granular polysaccharide

polymer.

[7] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 6 wherein the phthalocyanine skeleton and the granular polysaccharide polymer are bonded to each other through a covalent bond.

[8] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 7 wherein the phthalocyanine skeleton and the granular polysaccharide polymer are bonded to each other through a covalent bond utilizing a hydroxyl group and/or an amino group in the granular polysaccharide polymer.

[9] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 8 wherein the phthalocyanine skeleton and the granular polysaccharide polymer are bonded to each other through a covalent bond utilizing a reaction between a hydroxyl group and/or an amino group in the granular polysaccharide polymer and a group reactive with the hydroxyl group and/or the amino group in a phthalocyanine reactive dye containing the reactive group.

[10] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 9 wherein said reactive group in the phthalocyanine reactive dye

is at least one reactive group selected from dihalogenotriazines, monohalogenotriazines, trihalogenopyrimidines, sulfatoethylsulfones, dihalogenoquinoxalines, dihalogenopyridazinones, dihalophthalazines, sulfatoethylsulfone amides, mono- or dihalogenopyrimidines, acrylamide, vinylsulfone, dihalogenobenzothiazoles, methylolamine, and acid chlorides.

[11] The granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 10 wherein said reactive group is in a phthalocyanine reactive dye bonded to a phthalocyanine nucleus through a divalent group.

[12] A process for producing a granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11 wherein the hydroxyl group and/or the amino group in the granular polysaccharide polymer are reacted with the reactive group in the phthalocyanine reactive dye.

[13] The process for producing a granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to claim 12 wherein the reactive group in the phthalocyanine reactive dye is at least one reactive group selected from dihalogenotriazines, monohalogenotriazines, trihalogenopyrimidines, sulfatoethylsulfones,

dihalogenoquinoxalines, dihalogenopyridazinones, dihalophthalazines, sulfatoethylsulfone amides, mono- or dihalogenopyrimidines, acrylamide, vinylsulfone, dihalogenobenzothiazoles, methylolamine, and acid chlorides.

[14] A granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto, for use in concentration, purification or separation of a polycyclic organic material wherein a granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11 is used.

[15] A compound-separating tool characterized by comprising a granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11.

[16] The compound-separating tool according to claim 15 which is a column, a cartridge, a disk, a filter, a plate, or a capillary.

[17] The compound-separating tool according to claim 15 or 16 wherein said compound-separating tool is used in concentration, purification or separation of a polycyclic organic material.

[18] The compound-separating tool according to claim 17 wherein said polycyclic organic material is one or at least two compounds selected from aromatic or heterocyclic compounds having two or more rings.

[19] A method for concentrating a polycyclic organic material, characterized by comprising adsorbing a polycyclic organic material on a granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11 and then desorbing the adsorbed polycyclic organic material.

[20] The method for concentrating a polycyclic organic material according to claim 19 wherein, after the adsorption of the polycyclic organic material on the granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11 in a polycyclic organic material-containing gas or liquid, the adsorbed polycyclic organic material is desorbed by elution with a solvent.

[21] The method for concentrating a polycyclic organic material according to claim 19 or 20 wherein said polycyclic organic material is one or at least two compounds selected from aromatic or heterocyclic compounds having two or more rings.

[22] A method for separating a polycyclic organic material, characterized by comprising adsorbing a polycyclic organic material on a granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11 and then desorbing the adsorbed polycyclic organic material.

[23] The method for separating a polycyclic organic material according to claim 22 wherein, after the adsorption of the polycyclic organic material on the granular polysaccharide polymer having a phthalocyanine skeleton bonded thereto according to any of claims 1 to 11 in a polycyclic organic material-containing gas or liquid, the adsorbed polycyclic organic material is desorbed by elution with a solvent.

[24] The method for separating a polycyclic organic material according to claim 22 or 23 wherein said polycyclic organic material is one or at least two compounds selected from aromatic or heterocyclic compounds having two or more rings.